

them by shipwreck on their way to this country, escaping with difficulty with his life. After his second shipwreck, and when no longer young, he left England to form a third collection; and that shared the same fate as the preceding two; so that we can only use his drawings and the few materials which were then in our hands. Now Dr. Anderson observes that he has examined 45 living specimens of one and 120 living specimens of another species; but, curiously enough, his paper contains nothing that is not to be found in Hamilton's and Hardwicke's drawings, and in my Synopsis, and other works published years ago.

The two Indian mud-tortoises are:—first, the *Testudo gotaghol* of Hamilton, the *Trionyx javanicus* of Geoffroy St.-Hilaire, and the *Emyda javanica* of Schweigger, which are characterized in my Synopsis before quoted by the very characters which Dr. Anderson gives to distinguish them. The second is *Trionyx hurum* of Hamilton, which is described and figured, just as Dr. Anderson describes it, at p. 47 of my Synopsis, and figured at t. x in the same work, from Hardwicke's drawing; but perhaps Dr. Anderson thinks it forgotten.

Dr. Anderson observes that the skulls of these two species are very different—certainly no new observation; for one is the type of the modern restricted genus *Trionyx*, and the other the type of the genus *Potamochelys*, established on the differences in the skulls. The skulls of both have been repeatedly figured. Truly Dr. Anderson seems to have learned little since he attended my late esteemed friend's lectures. Fortunately there are several very good zoologists and comparative anatomists in India, who are doing good work and extending the science.

BIBLIOGRAPHICAL NOTICES.

A History of the Birds of New Zealand. By WALTER LAWRY BULLER, Sc.D., F.L.S., F.G.S., &c. London (John Van Voorst) and New Zealand (the Author): 1872. 4to. Part I. With 72 pages and 7 coloured plates.

THE first work professing to give a complete account of the ornithology of New Zealand must needs be an important one. This ornithic fauna presents so many points of general biological interest, that only those of the islands east of Africa can be compared with it. The last remnant of a former continent, and probably the oldest country on the face of our globe, New Zealand is, or was, tenanted by ornithic forms which have arrived at the verge

of life ; already a number of gigantic flightless birds have gradually succumbed (may be through internal decline, accelerated by the unceasing attacks of men and of a bird of prey twice the size of an eagle), and their only surviving representative, the dwarf race of *Apteryx*, will probably soon follow. Geographically considered, this fauna may be expected to be composed of forms most aberrant from European types ; and, indeed, this is the case in a great measure ; yet, in spite of essential structural differences, some of the birds most characteristic of New Zealand show, with regard to their habits and the place they fill in the economy of nature, such striking analogies with our European species, as to remind us at once of our starlings, thrushes, wrens, &c. The birds peculiar to New Zealand may be considered its oldest inhabitants ; they are mixed with Polynesian forms and others having a still more extended range ; and the total number amounts to some 150 species.

It was high time that a complete account of this fauna should be given by a competent naturalist. Some of the most interesting forms have already become almost, if not quite, extinct ; others are fast expiring, or obliged to accommodate themselves to the changed conditions of the country. This change in the fauna is effected by several agencies :—first, by one which, we believe, is universally at work so steadily as to be almost imperceptible, and which, therefore, is not generally recognized. Every species, as it has its origin and period of fullest development, so it has its period of decline finally leading to its extinction ; and if this be really the case, we may expect that in New Zealand, which is presumed to be the oldest country on the face of the globe, certain of its most highly developed animal forms are disappearing from this innate cause. The second agency is the progress of colonization and culture, which, rapidly spreading over a country not larger than Great Britain, will deprive a part of the species of their retreat and food, and conduce even more effectually to their extirpation than the increased number of guns, traps, and cats. The third cause of the change is the introduction of European birds. Sparrows, larks, robins, starlings, thrushes, pheasants, are most easily acclimatized and multiply ; of necessity they will take up a not inconsiderable portion of the range occupied by the native birds, and, readily accommodating themselves to the conditions of culture, will replace those which cannot reconcile themselves to these conditions. We do not say that the majority of the native species will not survive, though in diminished numbers of individuals ; but it is quite probable that some of these survivors will be preserved by accommodating themselves to the new state of things, modifying in a more or less perceptible manner their nidification, food, or some other part of their mode of life : and if such changes should occur, the student of a future generation will find in Dr. Buller's work the means of comparing the birds of his time with those of the past.

Having made these remarks, in order to show the interest attached to the subject, we will state in a few words the plan of the

work. It will comprise an introductory treatise on the ornithology of New Zealand, a diagnosis of each bird (male, female, and young) in Latin and English, with the synonymy and references to the more important portion of the literature, and a detailed description of the external characters, of variations, and of the habits. About one half of the species are represented by coloured illustrations. The work will be published in five parts, each containing not less than seven plates. Moreover we understand that the author intends to conclude the work with an account of the osteology of the more remarkable forms.

There can be no doubt that Dr. Buller is eminently qualified for carrying out this task. Resident in the colony for many years, he has made this part of the fauna his special study; his official position has enabled him, during a period of more than twelve years, to visit nearly every part of the country, bringing him into frequent intercourse with the various native tribes, who assisted him in collecting specimens and information. By his previous preliminary publications he had entered into fruit-bearing communication with ornithologists in Europe; and in New Zealand itself he had in Mr. Potts a most indefatigable and trustworthy fellow-labourer. Finally, by a lengthened visit to England, he derived the great advantage of examining types in European collections, especially in the British Museum, and of availing himself of that typographic and artistic skill in which this country excels.

The author has shown unremitting care in adducing all the information that can possibly throw light on his subject; he has spared no pains in illustrating it in the most perfect manner; and the result is that a most valuable work is placed before the student of ornithology, which will offer to every lover of natural history real and permanent enjoyment, and which, by its attractive form, will allure many a young man in that colony from the pursuit of other branches into the camp of ornithology. We do not mean to say that the critical eye does not detect faults; but they refer to isolated details, and do not affect the character of the work. There is only one point in which we may be allowed to caution the author; and that is, to weigh carefully his reasons when he enters into questions of natural affinity of various groups. Nobody will deny that *Stringops*, by its nocturnal habits, and consequent external modifications of a portion of its head and plumage, reminds us of the owls; but if (as the author justly observes), "in all the essential characteristics of structure, it is a true parrot," it cannot supply, "in the grand scheme of nature, the connecting link between the owls and parrots." This view would be as little true as that the shrew-mice are a connecting link between the Insectivora and Rodents. If such a connecting link were in existence, we feel sure it would be in a part of the world where the Stringine and Psittacine types are more developed than in New Zealand.